

US EPA ARCHIVE DOCUMENT

# Use of Multiple Landings Rather than Single Landing for CPT

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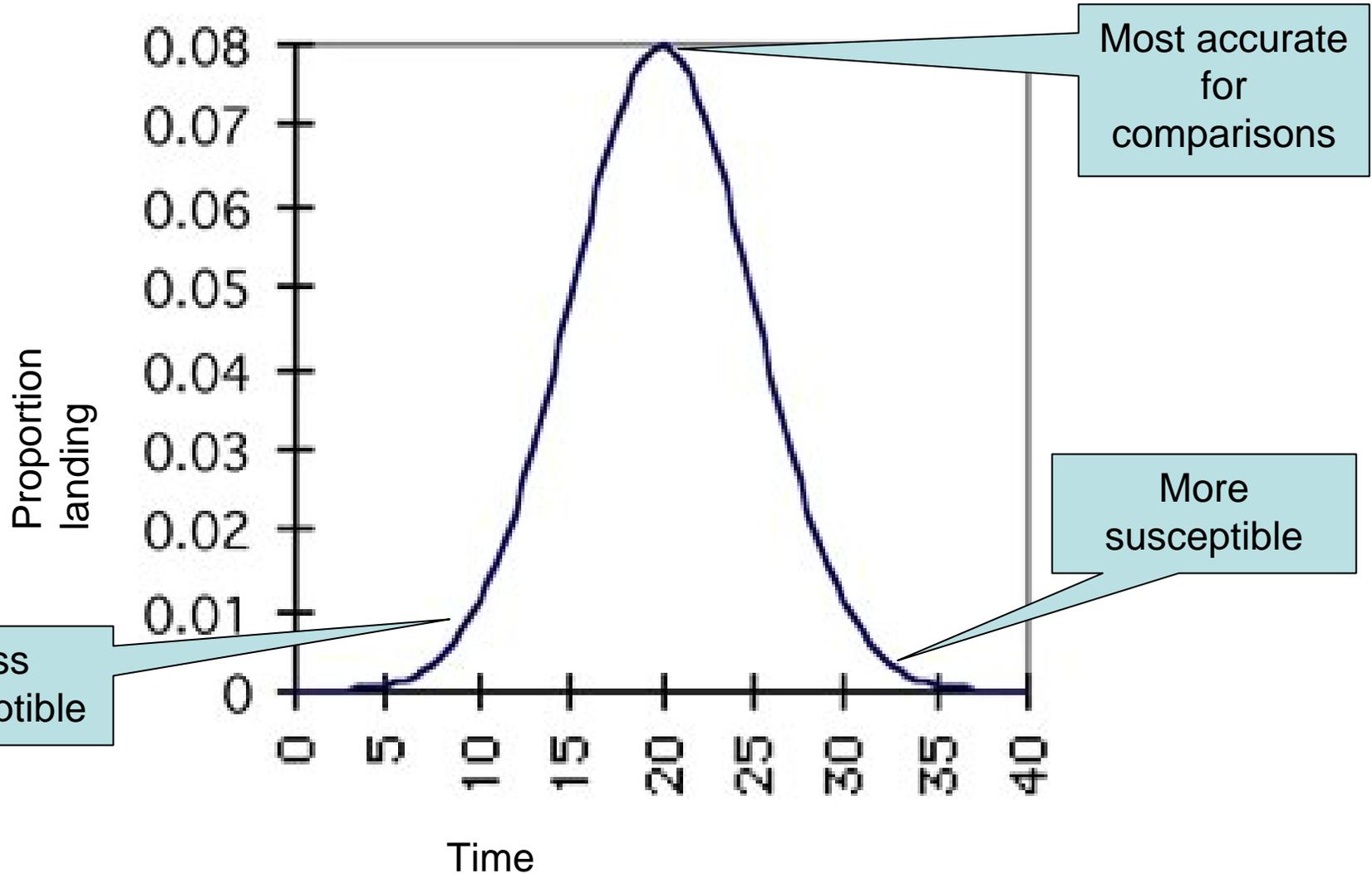
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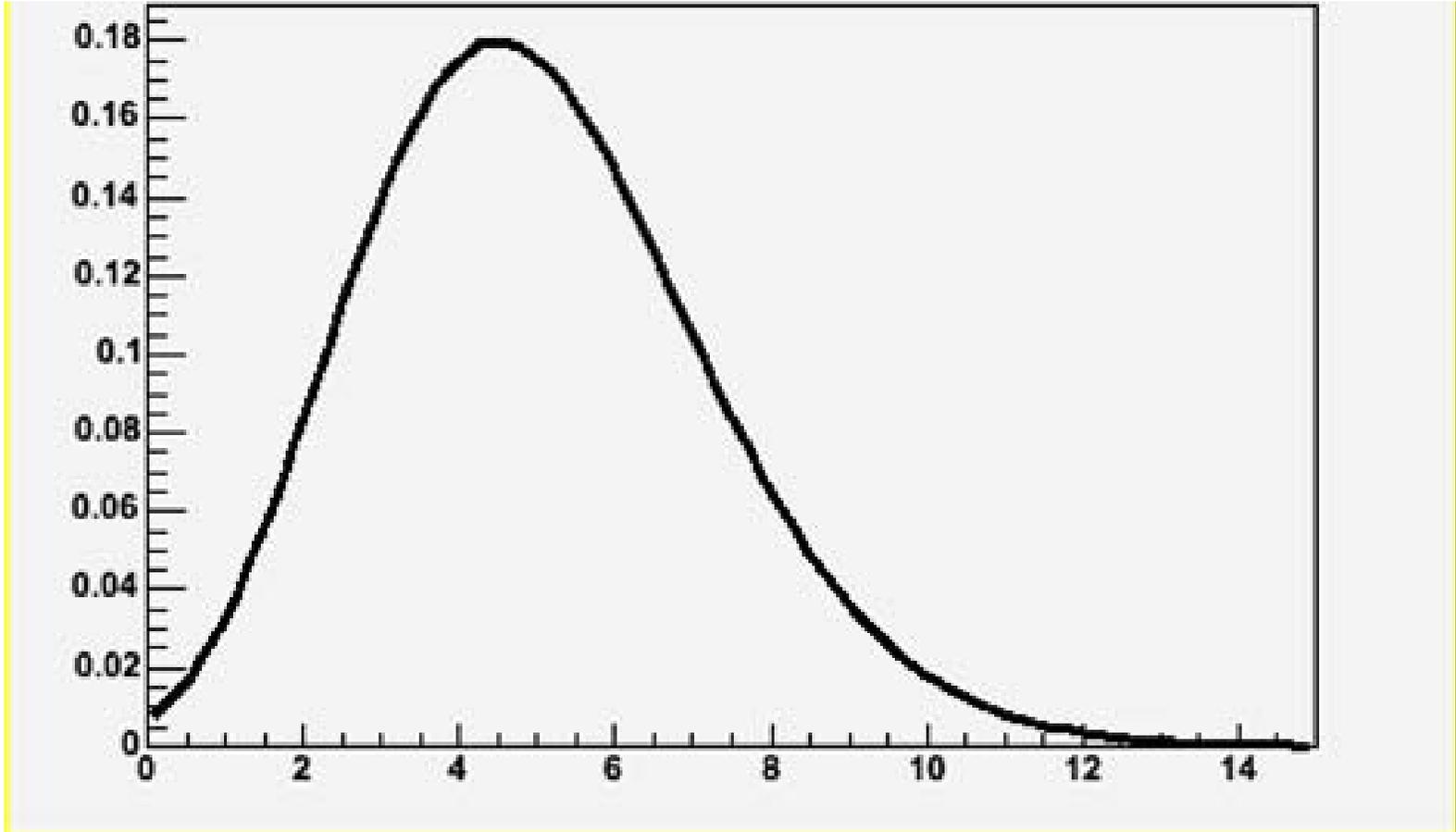
# Normal Distribution

Real variability between mosquitoes

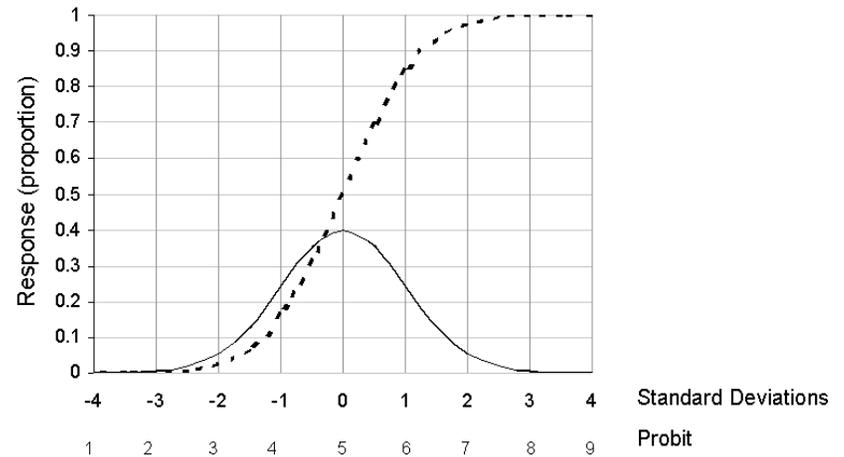
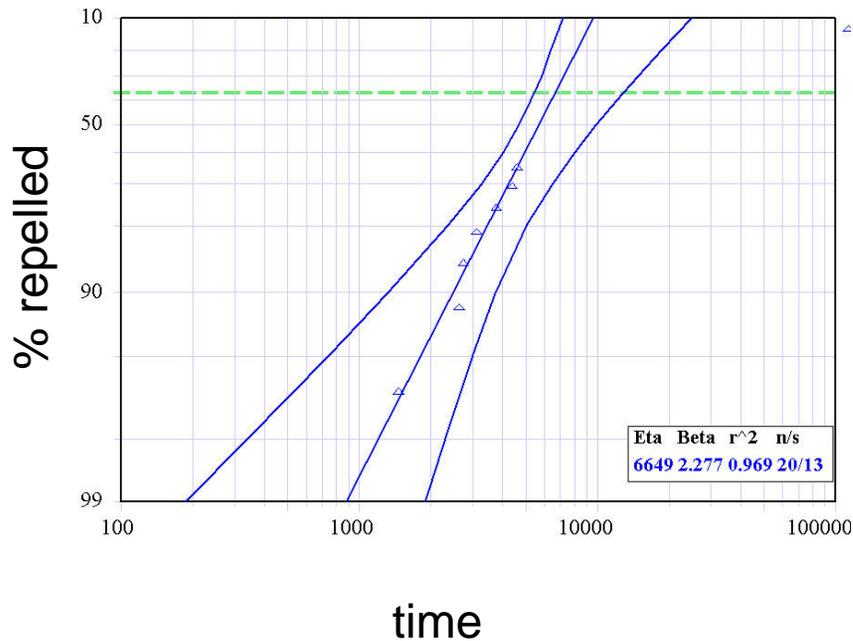


# Poisson Distribution

Each mosquito with same probability of landing at that time,  
 $n$  not known



# Log Dose Probit Precision Greatest at middle response



# Implications for Protection Time

- CPT based on single mosquito
- 100% protection (=CPT) inherently imprecise
- Consumer view of 100% protection
  - Controversy whether this is public's desire
  - Public health community assumes 100% protection to prevent transmission
  - I propose that duration to 90% more realistic
- Precision and confidence enhanced by multiple landings
- No additional risk because using landings rather than bites

# Advocate Precise, Safe, Standardized Lab Tests for Comparisons

- Multitude of variables in the field make specific comparisons between studies almost hopeless (okay within a single study)
- Lab tests could be standardized all the way to strain of mosquito/tick, most variability from subjects
- Actual hours of protection is always a rough estimate because of other factors (use pattern, dosage, weather, etc.)
- EPA labeling standard can inform consumer accurately about *relative* duration of product through the use of standardized lab tests
- Duration during field tests more for advertising claims, public health authorities?